Improving Adolescent Reproductive Health Knowledge and Outcomes through NGO Youth-Friendly Services

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EXECUTIVE SUMMARY

Over the past several years The Centre for Development and Population Activities (CEDPA) has been engaged with the "Better Life Options Program (BLP)" to promote opportunities for adolescent girls and young women to make better life choices concerning their health, economic status, civil participation, education, employment and decision making abilities and family planning. In September 2001 with financial assistance from USAID through the global ENABLE Project, CEDPA initiated a 16-month pilot project on "Adolescent-Friendly Reproductive Health Services" that was implemented from September 1, 2001 to December 31, 2002 through four nongovernmental organizations (NGOs) in three states of India – Delhi, Haryana and Madhya Pradesh (MP). In addition to the traditional BLP program components, ENABLE provided partner organizations an opportunity to test the integration of health services within the program by engaging part-time doctors and lab technicians.

The primary aim of the study was to measure the results of the "Adolescent- Friendly Reproductive Health Services Program" on knowledge and health outcomes of participating adolescents. Specifically, the study assessed changes in perception, knowledge, and attitude with respect to puberty, menstruation, gender discrimination, family planning, maternal health, HIV/AIDS transmission and prevention, and conflict resolution, and to compare the effects of long-term and short-term (camp and in-school) interventions on these changes. Another objective was to measure the feasibility and effectiveness of youth-friendly services, e.g. effect of iron supplementation among adolescent girl participants on hemoglobin levels. Emerging trends are expected to assist CEDPA and their partners to further strengthen and expand the service component of the BLP to meet the health needs of adolescents.

In total 4,255 adolescent girls and 3,527 adolescent boys were provided Family Life Education and RH information during the project through the four partner organizations. Of these, 91% received health services and counseling. BGMS expanded the BLP and ARH in four districts of Madhya Pradesh with support from UNFPA and successfully reached and served 2,900 adolescents through local women's groups and Anganwadi workers.

The study adopted a pre-post test quasi-experimental design to assess the extent of change in awareness/knowledge and opinion/attitude among participants at the time of program registration and at the point of program completion. At time of admission into the program, participants filled out a profile questionnaire. In addition, pre- and post-intervention knowledge and attitude tests were to be administered to participants. Participating adolescents were administered a questionnaire specially designed for the purpose of assessing changes in awareness, knowledge and opinion levels regarding pubertal changes in physique, gender sensitivity, knowledge of HIV/AIDS, knowledge of family planning (FP) and its methods, desired family size, decision-making abilities and so on before and after project intervention. In addition, height and weight of the adolescent girls and blood tests for Hb count collected as part of health check-ups were compared pre- and post- intervention to determine any improvements in health status.

While baseline profiles were collected from the 4255 participants, only 779 of the girls completed both pre- and post- tests. The local facilitators in MP were least likely to

administer pre-post tests. With 779 pre-post tests available, it was decided to do an analysis of pre-post intervention knowledge and attitude change despite the limited response.

Statistically significant increases in knowledge pre- and post- intervention were found for:

- Changes in physical characteristics during puberty (pubic hair growth, menstruation and increase in breasts).
- *The four modes of HIV/AIDS transmission*: 31-44 percentage points (pps) in the 10-14 age group and 31-34 pps in the 15-19 age group.
- *HIV/AIDS preventive measures*: Use of condoms (20 pps), monogamous relationships with an uninfected partner (20 pps) and blood transfusion with only safe blood (28 pps).
- *Modern Methods of Contraception:* Male/female sterilization (44 pps), condoms (32-36pps), and IUCD (19-30pps).
- *Dual Protection Role of Condom* – against disease and pregnancy: 26 to 30 pps among both age groups and education levels.
- *Awareness of Sexual Harassment/Eve Teasing:* For girls in the 10-14 age group, awareness of sexual harassment increased 34 pps and non-violent ways of resolving conflict increased 31 pps.
- *Gender Equality:* The highest increase has been in the recognition that an important means of creating gender equity is sending both girls and boys to school.
- *Antenatal Services for a Healthy Pregnancy:* Three ANC checkups (28 pps), two TT injections (28 pps) and taking IFA tablets (23-27 pps).
- *Desired Number of Children:* The change in desire for less than 3 children has increased by 15-24 pps, while the desire for three or more children and the belief that the number of children a couple will have is up to God decreased significantly.

Significant changes were found among all age groups and educational levels.

Ninety-five percent of the adolescents participating in the program received health care services, including deworming, tetanus toxoid immunization, and nutrition counseling. Adolescent girls received iron supplementation. Both boys and girls received health check-ups, hemoglobin testing, treatment for reproductive tract infections (RTIs), health counseling, and general health care. Occasionally, eye check-ups, ear, nose and throat exams, screening for tuberculosis, gynecological check-ups and counseling sessions were also organized. Some of the reasons for counseling included domestic violence, incest, RH issues, drug abuse and sexually transmitted infections.

Adolescents diagnosed with having a serious health problem were referred to the nearest public/private health facility. The program facilitators escorted the adolescents to the

referral facilities to ensure that treatment was provided. This also helped in compliance, as the facilitators would counsel the parents and make sure that drugs prescribed were taken and follow-up visits made.

A very important finding of this operational study is the change in hemoglobin levels among the adolescent girls. Significant improvements in Hb levels among girls who were provided iron supplementation were found among both age groups. In the age group of 10-14 years, the percentage of adolescent girls who had hemoglobin level of below 10 gms/% reduced from 86% to nearly 20% and in the age group of 15-19 years, it has decreased from 86% to 36%. The corresponding change has taken place in the percentage of girls with hemoglobin higher than 10 gms/% or more in both age groups. This indicates that the intervention had significant impact in improving the hemoglobin level of adolescent girls in the project.

In conclusion, program interventions have been effective in significantly improving the knowledge of adolescent girls and in providing services such as health checkups, counseling and iron supplementation. Adolescents received a wide range of services and many confidential issues were discussed with professional providers during individual counseling sessions. The approach of focusing on general adolescent health rather than on adolescent reproductive health was very effective and faced little resistance from parents, program implementers and schools.

I. INTRODUCTION

1.1 Importance of the Project

1.1.1 Status of adolescent girls in India

Adolescence is broadly understood as a period of physical, psychological and social maturity from childhood to adulthood. The World Health Organization defines adolescence both in terms of age between 10 to 19 years and in terms of phase of life marked by special attributes. These attributes include rapid physical growth and development; physical, social and psychological maturity but not all at the same time; sex and maturity and the onset of sexual activity; experimentation; development of adult mental processes and adult identity and transition from total socio-economic dependence to relative independence.

In India, adolescents account for a little more than one-fifth of the population (21.4 percent). Out of an estimated 200 million adolescents, girls account for slightly less than 100 million due to the disproportionate sex ratio.

Though adolescents constitute an important segment of society, until the 1994 International Conference on Population and Development, their special needs have not been addressed seriously. Some socio-economic and demographic characteristics of adolescent girls in India are:

- Of the total population, 12.1 % and 10.5 % girls fall in the age groups of 10-14 and 15 to 19 years, respectively (CSO 2001).

- Around 69 percent of girls in the age group of 10 to 14 years and about 66 percent in the age group of 15 to 19 years are reported to be literate (CSO, Youth in India 1998).

- Early marriage, particularly for girls, continues to be the norm. By the age of 15 years as many as 26 % of girls get married. By the age of 18 years, this figure rises to 54 % (Mehta 1998).

- Early marriage leads to early sexual activity and thereby fertility. Evidence indicates that 36 % of married adolescent girls aged 13-16 years and 64 % of those aged 17 to 19 years are already mothers or pregnant with their first child (NFHS 1992-93).

- Labour force participation rates of the adolescent girls of the age group 15 to 19 years was 35.3 in 1987-88 and 30.7 in 1993-94 (ILO, Visaria 1998).

- Around 35 % of cases of sexual assault are against minors and a fifth of the rapes registered in India are of girls aged 10 to 16 years (Country report of Beijing Plus Five 2000).

- They are the most vulnerable group for getting infection of HIV/AIDS. Reports indicate that half of the new cases of HIV/AIDS are among people under 25 years of age (UNFPA for UN System in India 2000).

1.1.2 Role of adolescents — their education and information needs

Adolescence is a word that denotes transition. The process of growing up is a period of confusion and conflict. A world that appears very different and possibly perilous suddenly displaces the familiar life of childhood. It is often difficult for young people to fully comprehend these changes as they are occurring. It is the responsibility of those around them – parents, teachers, elder siblings and friends, community leaders, health care providers – to provide guidance on what to expect and what is expected of adolescents and opportunities to learn in various formal and informal ways.

When guidance and learning opportunities are offered effectively, adolescents have a greater chance of becoming healthy, informed and responsible adults and later parents, achieving life skills for participation and a useful role as a citizen and for becoming an economically productive member of the family and the society.

In the past, the widely practiced traditions of child/early marriage and child labour reduced this adolescence period to a minimum. As a result, in India, very little attention has been paid to this preparatory phase of life. However, the current trend of increasing education facilities, gradual increase in the age of marriage and severe restrictions imposed by government on hiring of child labour have significantly enlarged and continue to enlarge the adolescent phase of life of people in India. This has raised the need for training, informing and educating adolescent girls and boys to be more responsive mothers and fathers, citizens and economically productive and responsible members of the family and larger society.

Thus, more specifically, this indicates that adolescents should be properly informed and prepared effectively in achieving sound general and reproductive health, learning improved family life skills, actively participating in decision making in the family and society and in undertaking economically oriented vocational roles.

In addition to preparing adolescents for the above stated future social roles, it is also very important to inform, educate and sensitize adolescent girls and boys about physical and psychological changes being experienced during this period.

Nutrition is usually considered another significant indicator of the health status of adolescents, particularly girls. It is a primary determinant of the growth spurt that characterizes adolescence. Poor nutrition is often mentioned as the major reason for the delay in the onset of menarche. The poor nutritional status of girls has intergenerational effects. The most visible manifestation of nutritional deficiency is the high prevalence of anemia and stunted growth among adolescent girls.

Yet, health care through the public sector is geared to care of children 0-5 and married women of reproductive age. Public sector services appropriate to the special needs of adolescents are generally not available. Adolescent Medicine has been introduced only recently at a few premier medical facilities and post-graduate programs.

In short, adolescents are now getting recognized as the most important resource for future development. It is a period in which a person is no longer a child and not yet an adult. This is a period of rapid growth when one is exposed to new opportunities, being faced with new situations, new types of behavior – which signify opportunities for growth and

development, but also risks to health and well-being. Adolescence thus is the entry point for raising the quality of life of individuals, families and communities through information, education and development action programs.

Over the past several years CEDPA has conducted the "Better Life Options Program (BLP)" to create options and promote opportunities for adolescent girls to make better life choices concerning their health, economic status, civil participation, education, employment and decision-making abilities and family planning. In September 2001, CEDPA, with financial assistance from the United States Agency for International Development (USAID), initiated a 16-month pilot project on Adolescent-Friendly Reproductive Health Services in the country. Clinical services are being provided as per a medical protocol developed for this purpose for both adolescent boys and girls with the partnership of four NGOs. This program, as a part of BLP, was implemented in three states in the country – Delhi, Haryana and Madhya Pradesh.

1.2 Aims and Objectives of the Study

The primary aim of the study was to measure the results of the "Adolescent- Friendly Reproductive Health Services Program" on knowledge and health outcomes of participating adolescents. Specifically, the study assessed changes in perception, knowledge, and attitude with respect to puberty, menstruation, gender discrimination, family planning, maternal health, HIV/AIDS transmission and prevention, and conflict resolution, and to compare the effects of long-term and short-term (camp and in-school) interventions on these changes. Another objective was to measure the feasibility and effectiveness of youth-friendly services, e.g. effect of iron supplementation among adolescent girl participants on hemoglobin levels.

Emerging trends are expected to assist CEDPA and its partners to further strengthen and expand the service components of the program according to the changing needs of adolescents in the country.

The present report is based on information gathered from adolescent girls only.

1.3 Partner NGOs Involved in the Project

The Project was implemented through the following four partner NGOs:

- PRAYATN - in slums of South Delhi
- YWCA of India - in slums of East Delhi
- Society for the Promotion of Youth and Masses (SPYM) – in slums of Delhi and five villages in Mewat, Haryana.
- Bhartiya Gramin Mahila Sangh (BGMS) – in four districts of Madhya Pradhesh (MP).

1.4 The Intervention

The partner NGOs adopted a mix of strategies depending on contextual situations in their implementing areas. The main strategies adopted were:

- Integrated Long-term Approach – in which the BLP training package ('Choose a Future') was integrated into vocational training classes, remedial tutoring classes, and recreational clubs.

- Short-term Camp Approach – in which adolescents were intensively trained in camps of short duration.

- Short-term School Approach – where the training package was imparted in the classroom.

In addition to imparting the BLP Training Package, health services were provided to the adolescent participants. Adolescent health service delivery protocols for unmarried girls, married girls and for boys were adapted from medical service guidelines of the National RCH Program, UNICEF, WHO, and the NIHFW adolescent center. These were shared with the partner NGOs.

To be culturally appropriate in the conservative social environment in which adolescents mature, reproductive health services were provided within the context of general health services to adolescents. The project partners provided adolescents medical services during the program through the engagement of part-time doctors and lab technicians.

Adolescent girls received iron supplementation, deworming, tetanus toxoid immunization, nutrition counseling. Both boys and girls received health check-ups, hemoglobin testing, treatment for reproductive tract infections (RTIs), health counseling, and general health care. Occasionally, eye check-ups, ear, nose and throat exams, screening for tuberculosis, gynecological check-ups and counseling sessions were also organized. Some of the reasons for counseling included domestic violence, incest, RH issues, drug abuse and sexually transmitted infections.

Adolescents diagnosed with having a serious health problem were referred to the nearest public/private health facility. The program facilitators escorted the adolescents to the referral facilities to ensure that treatment was provided. This also helped in compliance, as the facilitators would counsel the parents and make sure that drugs prescribed were taken and follow-up visits made.

1.5 Research Design and Technique for Data Collection

The study adopted a pre-test and post-test design to assess the extent of change in awareness/knowledge and opinion/attitude before and after participation in the program. The participating adolescents were administered a questionnaire specially designed for the purpose of assessing change in awareness/knowledge and opinion level about pubertal changes in physique, gender sensitivity, HIV/AIDS knowledge, knowledge about contraceptive methods, desired family size, and decision-making abilities.

A pre-coded, structured interview schedule with a few open-ended questions for obtaining qualitative information was provided to partner organizations to administer at time of registration to obtain the profile of adolescent participants. Multiple-choice pre-post tests

were provided to be administered at the onset of program participation and again upon completion of the program.

In all, four partner NGOs in three states (Delhi, Haryana and MP) covered 4,255 adolescent girls. Table 1.1 presents the centre-wise coverage of adolescent girls.

Table 1.1: Showing the Centre-Wise Distribution of Respondents

NGOs	*No. of female participants*
Prayatn	413
SPYM	545
YWCA	397
BGMS	2,900
Total	**4,255**

As a part of health check-ups, height and weight were recorded and hematocrit blood test given to adolescent girls to identify anemia. The hematocrit test was repeated following provision of iron supplementation to determine improvements in hemoglobin levels.

1.6 Limitations of the Study

Obtaining completed pre- and post- tests for all participants from partner organizations presented a challenge. In MP, the program was implemented through a network of local women's groups and ICDS village workers (Anganwadi workers). In other cases, it was difficult getting pre-post tests in short term camps. Some partners did better than others in obtaining completed tests. These are some of the real challenges adolescent programs will face as they scale-up. In filling out the profile schedule, many girls did not respond to questions they either did not know the answer to or had no experience with. However, it was felt that the available data can further our understanding of how effective programs such as the BLP are in improving adolescents knowledge and health status and adds to the slowly growing body of existing data on adolescents in India.

1.7 Data Analysis

The data analysis has been carried out by TNS MODE using SPSS software after editing, coding and cleaning the data under experienced professionals in the organization.

The duration of the project was 16 months from September 1, 2001 to December 31, 2002.

II. PROFILE OF ADOLESCENT GIRLS ENROLLED IN THE PROJECT

2.1 Demographic Profile

This chapter presents the socio-demographic profile of adolescent girls enrolled in the program. For findings on their perception/opinion about different aspects of family issues/matters please see the TNS MODE Final Evaluation Report.

Age: The age distribution of the participating adolescent girls indicates that just over half (52%) belong to the 15-19 age group, i.e. late adolescence, and 43 % are in the 10-14 age group with the exception of the YWCA East Delhi program reporting 69% in the 10-14 age group (Table 2.1.1).

Marital Status: Around 87 percent of girls in the four project areas were unmarried (87%). This is confirmed by the data received from partner NGOs (Table 2.1.1).

Levels of Education: Overall, 46 percent of adolescent girls are currently in school (46%), while one-third had dropped out of school (33%), and nearly one-fifth had never gone to school (21%). Among the project sites it is further noted that the percentages of girls currently studying in school are highest in the East Delhi slums (76%).

Work Status: The vast majority of the adolescent girls were not working at the time of the study (88 %). Similar trends were found from all the project sites (Table 2.1.1).

2.2 Nutrition Status of Adolescent Girls Enrolled in the Project

To assess the nutritional status of the adolescent girls, their height and weight measures were carried out. Based upon the height and weight information BMI was calculated. Keeping in view BMI value as 18.5 kg/m2 as an average measure in the Indian context, it was found that nearly 20 percent of girls in the age group of 10-14 years as well as in the age group of 15-19 years were malnourished (Table 2.2).

Table 2.1: Socio-Demographic Profile of Adolescent Girls

Particulars	Name of NGO				Percent of Total
	PRAYATN	SPYM	YWCA	BGMS	
Age (in years)					
10-14	36.1	26.8	69.0	43.2	42.8
15-19	54.2	56.5	30.2	53.8	52.0
No response	9.7	16.7	0.8	3.0	5.2
Marital status					
Unmarried	95.2	90.6	98.5	84.0	87.3
Married	4.1	9.2	1.5	14.4	11.6
Married but *gauna* not yet performed	0.7	0.2	0.0	1.6	1.2
Level of education					
Never had gone to school	21.8	17.1	2.0	24.3	21.1
Have dropped out of school	35.8	32.1	22.2	34.0	32.9
Still studying	42.4	50.8	75.8	41.7	46.1
No response	0.0	0.0	0.0	0.0	0.0
Working status					
Yes	1.7	3.7	0.8	16.0	11.6
No	98.3	96.3	99.2	84.0	88.4
No response	0.0	0.0	0.0	0.0	0.0
Total (N)	**413**	**545**	**397**	**2900**	**4255**

Particulars	Name of NGO				Percent of Total
	PRAYATN	SPYM	YWCA	BGMS	
In which class still studying					
1-5	29.4	27.0	26.7	38.6	34.8
6-8	47.1	40.3	55.0	40.0	42.5
9-10	20.4	17.7	15.9	14.2	15.5
11-12	2.5	14.6	1.8	6.8	6.9
13-15	0.6	0.4	0.5	0.3	0.4
Total (N)	**323**	**452**	**389**	**2195**	**3359**

Table 2.2: Body Mass Index (Weight/Height) of Adolescent Girls by Age

BMI	Malnourished (BMI – kg/m2) Mean and Below 18.5)	
	10-14	15-19
<18.5	20.6	19.6
>=18.5	36.6	43.0
No response	42.8	37.4
Mean	21.2	21.2
Total (N)	**402**	**744**

III. FINDINGS ON CHANGES PRE- POST INTERVENTION

Adolescence is a critical transition stage from childhood to adulthood. During this period several significant physiological and emotional changes take place and individuals try to establish their social rights and their identity in the society. Inquisitiveness and the desire to gain knowledge about various issues during this period grow. In turn, individuals gather pertinent and impertinent knowledge about different aspects of life from various sources, reliable and unreliable.

Chapter III analyses the post-intervention changes in knowledge of adolescent girls in respect of physical changes appearing with the onset of pubertal age, knowledge about causes of HIV/AIDS infection and how to safeguard oneself against it; contraceptive methods; consequences of having children before 20 years of age; knowledge about menstruation, their understanding about sexual harassment and ways to resolve conflicts with the opposite sex, their knowledge of gender discrimination, number of children they would like to have and so forth. The findings are based on the responses of girls as presented in Tables 3.1 to 3.14. Though 4,255 adolescent girls participated in the study at four sites, pre- and post-intervention information was available only from 779 girls; these data have been used to present the analysis. Also, the findings presented are overall for all four sites together.

3.1 Knowledge of Pubertal Changes

A specific question was asked to the adolescent girls about the physical changes appearing with the advent of puberty. Table 3.1 presents the pre- and post-intervention knowledge of adolescent girls relating to physical and physiological changes in respect of five prominent puberty-related characteristics by age group and level of education.

It is seen from Table 3.1 that there is significant increase ($p<0.01$) in knowledge of adolescent girls in both age groups. In both age groups (10-14 and 15-19) there are significant increases in knowledge, due to intervention, regarding change in physical characteristic like pubic hair growth (42.6 pps and 37.7 pps), menstruation (22.7 pps and 21.5 pps) and increase in breasts (17.2 pps and 12.7 pps). However, the increase in knowledge about two other changes such as change in voice (7.5 pps and 4.6 pps) and buttocks broadening (9.1 pps and 6.7 pps), though statistically significant, is small.

By and large, the information obtained shows that the younger age group is associated with greater change in knowledge of puberty-related characteristics as a result of the intervention.

Table 3.1 shows that there are significant increases ($p<0.01$) in knowledge in each of the educational levels which are similar across educational levels.

Table 3.1: Knowledge of Prominent Physical Changes among Females during Adolescence by Age Group and Educational Level

Particulars		Menstru-ation	Increase in breast	Growing hair in vagina/ pvt. parts	Voice is nice and looks good	Buttocks broaden	Total (N=779)
Age group (in years)							
10-14	Pre	4.3	5.5	17.5	0.2	0.0	418
	Post	25.8	18.2	55.2	4.8	6.7	
	Change @	21.5	12.7	37.7	4.6	6.7	
15-19	Pre	12.5	8.3	17.2	6.3	2.3	361
	Post	35.2	25.5	59.8	13.8	11.4	
	Change @	22.7	17.2	42.6	7.5	9.1	
Educational level							
Primary	Pre	4.2	4.7	19.3	1.9	0.9	213
	Post	24.9	15.5	58.6	10.8	8.5	
	Change @	20.7	10.8	39.3	8.9	7.6	
Middle School	Pre	6.2	5.9	18.9	2.5	0.5	370
	Post	28.6	19.7	53.5	6.5	6.5	
	Change @	22.4	13.8	34.6	4.0*	6.0	
Higher School	Pre	18.9	11.5	35.2	5.5	2.0	148
	Post	42.6	33.8	62.2	8.2	16.4	
	Change @	23.7	22.3	27.0	2.7 NS	14.9	
Total	**Pre**	**8.1**	**6.8**	**17.3**	**3.1**	**1.0**	**779**
	Post	**30.2**	**21.6**	**57.4**	**9.8**	**8.6**	
	Change @	**22.1**	**14.8**	**40.1**	**6.7**	**7.6**	

Note: Break-up of 48 cases by educational level is not available.

@ = $p < .01$ (for each column value across the row) ; * = $p < .05$; NS = Not Significant

3.2 Knowledge about Causes of HIV/AIDS

There is a increasing awareness that there are growing numbers of young women who are the silent victims of the HIV/AIDS epidemic in India. Adolescent girls, who thusfar have largely been left out of HIV/AIDS initiatives, have a tremendous need for information on HIV/AIDS transmission and prevention. Thus, specific questions were asked of the participants on the issue: "How can people get AIDS?' and 'What are the ways to prevent HIV infection?' Pre- and post-intervention results by age groups and levels of education are presented in Table 3.2.

Data indicate that overall there are significant increases ($p<0.01$) in knowledge for each of the four modes of transmission: sharing needles (39.8 pps), unprotected sex (30.1 pps), mother-to-child transmission (32.3 pps), and blood transfusion with infected blood (35.0 pps). These significant increases cut across age groups and educational levels. However, the change in knowledge in the age group of 10-14 years has been slightly higher compared to the 15-19 years age group due to the lower knowledge levels in the pre-intervention stage. Furthermore, there is a definite trend in increase in knowledge of girls by education level. Though increase has taken place in all three groups by education, the highest change has taken place in those who studied up to primary, followed by middle school and then high-school educated girls perhaps because of lower levels of knowledge in the pre-intervention stage among the less educated.

Table 3.2: Knowledge about Causes of HIV/AIDS by Age Group and Educational Level of Respondents

Particulars		Sharing needles or razor blades	Unprotected sex	Pregnant mothers infecting child	Blood transfusion with infected blood	Total (N=779)
Age group (in years)						
10-14	Pre	34.4	29.2	27.8	35.2	418
	Post	78.7	60.5	61.0	73.2	
	Change @	44.3	31.3	33.2	38.0	
15-19	Pre	46.8	50.4	43.5	51.0	361
	Post	81.2	78.9	74.5	82.0	
	Change@	34.4	28.5	31.0	31.0	
Educational level						
Primary	Pre	32.9	24.9	24.9	31.5	213
	Post	78.4	61.5	64.8	72.3	
	Change @	45.5	36.6	39.9	40.8	
Middle School	Pre	41.4	42.2	34.6	43.0	370
	Post	80.0	65.1	61.6	76.8	
	Change @	38.6	22.9	27.0	33.8	
Higher School	Pre	59.5	56.8	53.4	61.5	148
	Post	80.4	80.4	77.7	83.1	
	Change @	20.9	23.6	24.3	21.6	
Total	**Pre**	**40.2**	**39.0**	**35.0**	**42.3**	**779**
	Post	**80.0**	**69.1**	**67.3**	**77.3**	
	Change @	**39.8**	**30.1**	**32.3**	**35.0**	

Not : Break-up of 48 cases by educational level is not available.

@ = $p < .01$ (for each column value across the row)

3.3 Knowledge on Prevention of HIV/AIDS

On the prevention of HIV/AIDS, participants were asked to list four ways by which people can prevent HIV infection. Pre- and post-intervention information collected from 779 girls by age groups and levels of education is presented in table 3.3.

It is noted that in the pre-intervention phase, the respondents possessed very poor knowledge about the preventive measures against HIV infection among the adolescent girls in general but lowest in younger and less educated girls. Following participation, knowledge for each of the four measures increased significantly ($p < .01$) with positive correlation of increase found by age and educational level. In general, knowledge on the role of condoms to prevent HIV/AIDS went up 22.9 percentage points, on having a relationship with a single uninfected partner increased 21.3 percentage points, and on using only safe blood for transfusion went up 27.8 percentage points. Knowledge of how being treated for STIs can reduce HIV/AIDS infection increased by 8.8 percentage points from less than 1 percent.

Table 3.3: Knowledge about Prevention Measures against HIV/AIDS by Age Group and Education Level of Respondents

Particulars		Use of condoms	Monogamous relationship with uninfected partner	Blood transfusion with only safe blood	Getting checked for STDs if one has symptoms	Total (N=779)
Age group (in years)						
10-14	Pre	6.5	4.5	4.8	0.0	418
	Post	26.7	24.0	32.7	5.5	
	Change @	20.2	19.5	27.9	5.5	
15-19	Pre	8.3	7.8	7.5	0.8	361
	Post	34.1	31.4	34.9	13.7	
	Change @	25.8	23.6	27.4	12.9	
Educational level						
Primary	Pre	8.9	8.5	9.4	0.0	213
	Post	22.8	23.3	29.6	10.5	
	Change @	13.9	14.8	20.2	10.5	
Middle School	Pre	7.8	5.1	4.9	0.3	370
	Post	32.6	27.7	31.9	12.5	
	Change @	24.8	22.6	27.0	12.2	
Higher School	Pre	3.4	6.1	4.7	1.4	148
	Post	33.5	36.5	33.8	18.4	
	Change @	30.1	30.4	29.1	17.0	
Total	**Pre**	**7.3**	**6.0**	**6.0**	**0.4**	**779**
	Post	**30.2**	**27.3**	**33.8**	**9.2**	
	Change @	**22.9**	**21.3**	**27.8**	**8.8**	

Note: Break-up of 48 cases by educational level is not available.

@ = $p < .01$ (for each column value across the row)

3.4 Knowledge of Contraceptive Methods

A specific question was asked to assess their knowledge of the various contraceptive methods. The pre- and post-intervention findings are presented in Table 3.4.

Overall, knowledge among adolescent girls pre-intervention regarding modern contraceptives (condom, IUD, male and female sterilization) was very low ranging from 22.2% to 25.8% and negligible for natural methods (2%) and injectables (2%).

There were significant increases ($p < .01$) in knowledge by the end of the program bringing knowledge of condoms and sterilization to 60% and for IUCD to 50%. Trends are similar across ages but with higher change especially for methods like condoms (36%), IUCD (30%) and injectables (8%) among the 15-19 age group. A trend of significant increase in knowledge is noted for various methods but of varying magnitude in girls of all the three educational levels. The changes in high school girls have been slightly lower than those for primary and middle school girls, perhaps as a result of higher pre-intervention levels.

Table 3.4: Ways of Preventing Pregnancy by Age Group and Educational Level

Particulars		Condom	IUCD	Male/ Female sterilization	Natural methods	Injectables	Total (N=779)
Age group (in years)							
10-14	Pre	19.6	17.0	11.3	1.9	0.5	418
	Post	51.7	36.1	55.5	20.1	5.5	
	Change	32.1	19.1	44.2	18.2	5.0	
15-19	Pre	33.0	33.2	34.7	2.5	4.4	361
	Post	69.5	63.2	64.8	14.1	12.2	
	Change	36.5	30.0	30.1	11.6	7.8	
Educational level							
Primary	Pre	23.9	23.5	18.8	0.9	0.9	213
	Post	59.2	43.7	63.8	13.1	11.7	
	Change	35.3	20.2	45.0	12.2	10.8	
Middle School	Pre	24.6	21.4	19.2	3.0	2.2	370
	Post	57.6	44.1	55.7	19.7	7.8	
	Change	33.0	22.7	36.5	16.7	5.3	
Higher School	Pre	35.1	35.1	33.8	3.4	5.4	148
	Post	66.9	60.8	57.5	20.9	9.5	
	Change	31.8	25.7	23.7	17.5	4.1	
Total	**Pre**	**25.8**	**24.5**	**22.2**	**2.2**	**2.3**	**779**
	Post	**60.4**	**49.5**	**59.8**	**17.3**	**8.6**	
	Change @	**34.6**	**25.0**	**37.6**	**15.1**	**6.3**	

Note: Break-up of 48 cases by educational level is not available.
@ = $p < .01$ (for each column value across the row)

3.5 Knowledge of the Dual Protective Role of Condom

Condoms play a very important role in preventing STIs and HIV/AIDS as well as pregnancy. Information was collected from adolescent girls about the dual protection role of condoms and is presented in Table 3.5.

Pre-intervention younger girls had far lower awareness of the condom's dual protection compared to older girls regardless of educational level. The overall pre- and post-intervention responses indicate that awareness of the dual protection role of condoms doubled from 26.1% to 53.8% as a result of the program.

3.6 Knowledge of Consequences of Having a Child before 20 Years of Age

Information was collected from adolescent girls regarding their knowledge of any adverse consequence in having a child before 20 years of age (see Table 3.6).

Table 3.6 indicates that the trend of increase in knowledge of the consequences of early childbearing has been significant ($p<0.01$) from 15.7% to 28.8% in terms of negative

health effects on child and an even greater increase from 2.8% to 21.9% in understanding that early childbearing may change future plans and career. Older girls seem to be more concerned with consequences on their future career plan, which they may have to change if they have a child before age 20.

Table 3.5: Knowledge of Dual Role of Condom by Age Group and Educational Level

Particulars		Aware of Condom's Dual Protection	Total (N=779)
Age group (in years)			
10-14	Pre	21.1	418
	Post	46.9	
	Change @	25.8	
15-19	Pre	31.9	361
	Post	61.8	
	Change @	29.9	
Educational level			
Primary	Pre	25.8	213
	Post	54.9	
	Change @	29.1	
Middle School	Pre	24.9	370
	Post	50.8	
	Change @	25.9	
Higher School	Pre	32.4	148
	Post	56.8	
	Change @	24.4	
Total	**Pre**	**26.1**	**779**
	Post	**53.8**	
	Change @	**27.7**	

Note: Break-up of 48 cases by educational level is not available.
@ = p < .01 (for each column value across the row)

Table 3.6: Knowledge of Consequences of Having a Child before Age 20 by Age Group and Educational Level

Particulars		Health problems of child	May have to change future career plans	Total (N=779)
Age group (in years)				
10-14	Pre	13.4	1.0	418
	Post	28.7	12.0	
	Change @	15.3	11.0	
15-19	Pre	18.3	5.0	361
	Post	29.1	31.0	
	Change @	10.8	26.0	
Educational level				
Primary	Pre	11.7	2.3	213
	Post	31.9	14.6	
	Change @	20.2	12.3	
Middle School	Pre	15.4	2.2	370
	Post	28.6	17.6	
	Change @	13.2	15.4	
Higher School	Pre	27.7	4.1	148
	Post	35.1	21.6	
	Change @	7.4 NS	17.5	
Total	**Pre**	**15.7**	**2.8**	**779**
	Post	**28.8**	**21.9**	
	Change @	**13.1**	**19.1**	

Note: Break-up of 48 cases by educational level is not available.
@ = p < .01 (for each column value across the row)

3.7 Knowledge of Menstruation

Regarding 'menstruation,' a series of questions were asked of the adolescent girls specifically—'What is menstruation?', 'What did they use during periods?' and 'How do you manage bleeding?'. Pre- and post-intervention responses are presented in Table 3.7.

Overall, the adolescent girls started with very poor knowledge of menstruation with only one in four being able to say what it is. Though this was even lower for younger girls, only one in three 15-19 year olds could tell what menstruation was.

The program doubled knowledge levels of menstruation from 25.3% to 53.0%. For high school going girls this knowledge rose to 66%. The increased knowledge about disposable napkins/tampons from the market is significantly higher ($p<0.01$) in the age group of 15-19 years (13%) and high school girls (14%). The change in knowledge about use of other items for managing bleeding during menses is not much, even after intervention.

Table 3.7: Knowledge of Menstruation by Age Group and Educational Level

Particulars		Knowledge of menstruation	Disposable napkins or tampons from the market	Home made pads	Re-usable cloths	Wash the reusable cloth and dry it in the sun	Total (N=779)
Age group (in years)							
10-14	Pre	20.3	7.7	9.6	7.4	6.9	418
	Post	48.3	12.0	14.4	16.0	10.3	
	Change@	28.0	4.3*	4.8*	8.6*	3.4 NS	
15-19	Pre	32.1	12.5	18.3	8.3	8.3	361
	Post	58.4	25.2	28.3	15.2	17.7	
	Change@	26.3	12.7	10.0	6.9	9.4	
Educational level							
Primary	Pre	23.0	6.1	17.4	5.6	5.6	213
	Post	55.4	13.1	19.2	19.7	12.2	
	Change@	32.4	7.0*	1.8	14.1	6.6*	
Middle School	Pre	23.8	9.7	11.9	9.7	8.9	370
	Post	50.3	15.1	16.8	14.6	12.7	
	Change@	26.5	5.4*	4.9*	4.9	3.8 NS	
High School	Pre	42.6	18.2	16.2	5.4	7.4	148
	Post	66.2	32.4	27.7	10.8	10.8	
	Change@	23.6	14.2	11.5	5.4 NS	3.4 NS	
Total	**Pre**	**26.3**	**9.8**	**13.6**	**7.8**	**7.5**	**779**
	Post	**53.0**	**18.1**	**20.7**	**15.6**	**13.7**	
	Change @	**26.7**	**8.3**	**7.1**	**7.8**	**6.2**	

Not : Break-up of 48 cases by educational level is not available.

@ = $p < .01$ (for each column value across the row) ; * = $p < .05$; NS = Not Significant

3.8 Knowledge of Sexual Harassment/Eve-Teasing

Information was collected from adolescent girls regarding their understanding of sexual harassment and non-violent ways to resolve conflict. The pre- and post-intervention responses are presented in Table 3.8.

Table 3.8 shows that younger and less educated girls had lower pre-intervention knowledge of sexual harassment than their older counterparts. In general, there was little awareness of conflict resolution prior to the program.

As a result of the program, knowledge of sexual harassment doubled to 65.5% and conflict resolution tripled to 36.5%.

Table 3.8: Knowledge of Sexual Harassment and Ways to Resolve Conflict by Age Group and Educational Level

Particulars		Sexual harassment	Non-violent means of resolving conflict	Total (N=779)
Age group (in years)				
10-14	Pre	24.4	13.6	418
	Post	58.9	44.5	
	Change @	34.5	30.9	
15-19	Pre	37.4	12.5	361
	Post	73.4	27.4	
	Change @	36.0	14.9	
Educational level				
Primary	Pre	29.6	8.5	213
	Post	63.8	32.9	
	Change @	34.2	24.4	
Middle School	Pre	27.3	14.9	370
	Post	60.8	40.8	
	Change @	33.5	25.9	
Higher School	Pre	48.0	18.2	148
	Post	73.6	35.8	
	Change @	25.6	17.6	
Total	**Pre**	**30.4**	**13.0**	**779**
	Post	**65.5**	**36.5**	
	Change @	**35.1**	**23.5**	

Note: Break-up of 48 cases by educational level is not available.
@ = $p < .01$ (for each column value across the row)

3.9 Gender Equality

To derive the opinion about ways of making equal status of girls and boys, a question was asked of the adolescent girls on how to increase gender equality. The pre- and post-intervention responses are presented in Table 3.9.

Table 3.9 shows significantly higher increase in opinion ($p<0.01$) of gender equality being attained by sending both boys and girls to school in all age groups and education levels. By completion of the program two-thirds of the girls felt that this was a way to increase equality between the sexes. This reached to 83.1% of the girls attending secondary school.

3.10 Antenatal Services for a Healthy Pregnancy

Knowledge of the adolescent girls regarding antenatal services for a healthy pregnancy was assessed in both pre- and post-intervention phases. The information collected is presented in Table 3.10.

Table 3.10 shows statistically significant ($p<0.01$) increase in knowledge about the three components of ANC (ANC checkups, two TT injections and taking IFA tablets) which has gone from 17.7% to 33.4% overall. The greatest increase in knowledge was for three ANC checkups and for 100 days of Iron Folic supplementation. The highest change has occurred in the 15-19 age group for all three components of ANC.

Table 3.9: Opinions on Gender Equality by Age Group and Educational Level

Particulars		Girls and boys doing household chores	Sending only girls to school	Sending both girls and boys to school	Total (N=779)
Education level					
Primary	Pre	11.3	8.9	41.3	213
	Post	20.2	11.7	72.3	
	Change	8.9	2.8	31.0 @	
Middle School	Pre	14.3	8.1	49.7	370
	Post	22.7	11.9	75.1	
	Change	8.4	3.8	25.4 @	
Higher School	Pre	15.5	4.7	61.5	148
	Post	22.3	5.4	83.1	
	Change	6.8	0.7	21.6 @	
Total	**Pre**	**13.6**	**7.8**	**47.1**	**779**
	Post	**20.7**	**13.4**	**75.9**	
	Change	**8.2**	**5.5**	**29.2@**	

Note: Break-up of 48 cases by educational level is not available.
@ = $p < .01$ (for each column value across the row)

Table 3.10: Knowledge of Care Needed for Healthy Pregnancy by Age Group and Educational Level

Particulars		3 ANC checkup	2 TT injections	Take IFA tablets for 100 days	All three	Total (N=779)
Age group (in years)						
10-14	Pre	25.1	25.1	18.2	10.8	418
	Post	47.8	40.2	39.5	24.4	
	Change @	22.7	15.1	21.3	13.6	
15-19	Pre	37.4	37.1	33.8	25.8	361
	Post	65.9	65.1	60.4	43.8	
	Change @	28.5	28.0	26.6	18.0	
Education level						
Primary	Pre	26.3	29.6	21.6	17.4	213
	Post	54.5	53.1	45.1	30.0	
	Change @	28.2	23.5	23.5	12.6	
Middle School	Pre	31.9	28.4	24.3	14.3	370
	Post	49.2	45.4	44.3	28.4	
	Change @	17.3	17.0	20.0	14.1	
Higher School	Pre	43.9	45.9	39.2	32.4	148
	Post	68.2	61.5	58.1	43.2	
	Change @	24.3	15.6	18.9	10.8 NS	
Total	**Pre**	**30.8**	**30.6**	**25.4**	**17.7**	**779**
	Post	**56.2**	**51.7**	**49.2**	**33.4**	
	Change @	**25.4**	**21.1**	**23.8**	**15.7**	

Note: Break-up of 48 cases by educational level is not available.
@ = $p < .01$ (for each column value across the row)

3.11 Desired Number of Children

Adolescent girls were asked pre- and post- intervention how many children they would want. The responses are presented in Table 3.11.

Table 3.11 shows that intervention has made a significant impact ($p<0.01$) in terms of adolescent girls desiring less than 3 children from 61% to 74%. The increase has been greatest among the 15-19 age group, in which the proportion desiring fewer than 3 children rose from 59% to 83%. It is heartening to note that the desire for' three or more children' and the belief that the number is 'up to God,' have decreased significantly.

Table 3.11: Number of Children Desired by Age Group and Educational Level

Particulars		Less than three	Three or more	Up to God and others	Total (N=779)
Age group (in years)					
10-14	Pre	62.8	15.0	22.2	418
	Post	66.8	15.7	17.5	
	Change	4.0 NS	0.7 NS	-4.7 NS	
15-19	Pre	58.7	21.1	20.2	361
	Post	82.6	10.2	7.2	
	Change @	23.9	-10.9	-13.0	
Education level					
Primary	Pre	50.2	23.9	19.8	213
	Post	73.3	14.4	12.3	
	Change @	23.1	-9.5 *	-7.5 *	
Middle School	Pre	61.3	19.6	19.1	370
	Post	75.4	13.0	11.6	
	Change @	14.1	-6.6 *	-7.5	
Higher School	Pre	66.2	16.8	17.0	148
	Post	81.7	9.3	9.0	
	Change @	15.5	-7.5 NS	-8.0 *	
Total	**Pre**	**60.9**	**17.8**	**21.3**	**779**
	Post	**74.0**	**13.2**	**12.7**	
	Change @	**13.1**	**-4.6***	**-8.6**	

Note: Break-up of 48 cases by educational level is not available.
@ = $p < .01$ (for each column value across the row) ; * = $p < .05$; NS = Not Significant

3.12 Hemoglobin Level of Adolescent Girls

During pre- and post-intervention health checkups, blood samples of 1146 adolescent girls were collected to assess hemoglobin levels. During the program intervention, adolescent girls were given IFA tablets as per UNICEF recommended levels for adolescent girls. The blood samples of the respondents were again collected to see any improvement in their hemoglobin status after supplementation. The results of the hemoglobin tests during pre- and post-intervention phases are given in Table 3.12.

Before the intervention the results indicated that the vast majority of the adolescent girls in both age groups were anemic with 1 out of 5 having Hb levels 8 and under and two-thirds having levels ranging between 8.1 to 10 gms%. Following the course of iron supplementation, significant improvements in anemia levels has been noticed in both age

groups. In the age group of 10-14 years, the percentage of adolescent girls who had hemoglobin levels of below 10 gms% has gone down from 86% to nearly 20% and in the age group of 15-19 years, it has decreased from nearly 86% to 36 percent. The corresponding change has taken place in the percentage of girls with hemoglobin >10 gms% or more in both age groups. The mean increase in hemoglobin level due to intervention in the girls of age group 10-14 years (9.0 to 11.1) as well as 15-19 years (9.0 to 10.7) is highly significant ($p < 0.001$). Girls were heard to say that they felt stronger and less tired after taking the iron. Often girls remarked about the change in their skin tone from dull to glowing. Both girls and their parents were pleased with the results of iron supplementation. This shows that the intervention had a significant impact in improving the hemoglobin level of adolescent girls in the project.

Table 3.12: Hemoglobin Level of Adolescent Girls by Age

Hemoglobin	Age group 10-14 N=402		Age group 15-19 # N=744	
	Pre	Post	Pre	Post
6.1-8	23.1	0.4	22.1	1.9
8.1-10	63.2	19.4	63.7	34.4
10.1-12	11.4	63.2	11.7	50.8
12.1+	2.2	16.9	2.6	12.9
Mean #	**9.0**	**11.1***	**9.0**	**10.7***

***** $p < 0.001$

IV. LESSONS LEARNED AND CONCLUSIONS

4.1. Lessons Learned

1. In conservative societies such as India, where adolescent girls have low prevalence of pre-marital sex, experience a wide gender gap and are strongly protected within the family, provision of adolescent reproductive health services is highly controversial and sensitive. Such services must be provided through an integrated approach of service delivery, life skill development, and informal/formal educational opportunities.
2. Adolescents have a wide range of information and health care needs that must be addressed in a sensitive and youth friendly manner.
3. Adolescents and their parents are often reluctant to go to existing health facilities for adolescent health care needs as this might stigmatize them, especially girls.
4. When services are brought to program sites, there is an overwhelmingly positive response and interest in receiving health exams, needed treatment, and counseling. Interestingly, there was little resistance from parents even for girls receiving Tetanus Toxoid vaccinations and IFA.
5. During sessions with doctors, adolescent girls brought up a number of confidential and RH issues including rape, incest, STIs, menstrual problems.
6. In some cases, it was difficult to find doctors willing to go to villages to provide care for adolescents. In one case, a doctor from one project agreed to go to the site of another NGO partner in another State.
7. Doctors found the medical protocols useful as they had not had specialized training on adolescent health.

4.2. Conclusion

The ENABLE Project provided an opportunity to test the integration of adolescent health service delivery within the Better Life Options Program in India. The results have been very encouraging considering the very conservative nature of the communities in which CEDPA partners work. This attests to the trust CEDPA partners such as BGMS, Prayatn, YWCA, and SPYM have in the villages where they work and to the efficacy of the model of working through local partners. This project provided evidence as to the need for health care services appropriate to adolescents and a youth-friendly approach to reaching adolescents with services. The enthusiasm for services to adolescents generated in the project and the models for service delivery tested can be shared and expanded through other existing adolescent programs in the country.